



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/961,397	09/25/2001	Mingqiu Sun	P281404 P12147	5525

27496 7590 11/17/2005

PILLSBURY WINTHROP SHAW PITTMAN LLP  
725 S. FIGUEROA STREET  
SUITE 2800  
LOS ANGELES, CA 90017

EXAMINER

JACOBS, LASHONDA T

ART UNIT PAPER NUMBER

2157

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/961,397	Applicant(s) SUN ET AL.	
	Examiner LaShonda T. Jacobs	Art Unit 2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-5, 9, 15, 16, 20-25 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-8, 10-14, 17-19 and 26-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

This Office Action is in response to Applicants' Election to Restriction Requirement filed on August 24, 2005. Claims 1-5, 9, 15-16, 20-25 and 29-31 have been cancelled. Claims 6-8, 10-14, 17-19 and 26-28 are presented for further examination.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **6-8, 10-14, 17-19** and **26-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Manghirmalani et al (hereinafter, "Manghirmalani", U.S. Pat. No. 5,819,028) in view of Liang (U.S. Pat. No. 6,738,811).

As per claims **6** and **26**, Manghirmalani teaches a method and computer-readable encoded with a program for monitoring network health, comprising:

- receiving a heartbeat signal from a distributed agent located in a segment of a network (col. 5, lines 39-50);

Art Unit: 2157

- determining the health of the segment of the network based on a deviation of the heartbeat signal from a baseline pattern (col. 6, lines 34-48, col. 7, lines 56-67, col. 8, lines 1-15 and lines 22-46); and
- logging the health of the segment into a recorded health history (col. 11, lines 53-63 and col. 13, lines 31-47).

However, Manghirmalani does not explicitly disclose:

- estimating a future time at which the health segment becomes unacceptable based on a trend detected from the recorded health history.

Liang discloses a health diagnostic system capable for monitoring the health condition of computing device on a network comprising:

- estimating a future time at which the health segment becomes unacceptable based on a trend detected from the recorded health history (col. 8, lines 31-39).

Given the teaching of Liang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a health diagnostic system that is able to predict when a particular device on a network will fail by comparing the sample values with the historic data in order to prevent actual breakdown of devices thereby providing a healthy network system to computing devices on a data network.

As per claims 7 and 27, Manghirmalani teaches wherein the receiving the heartbeat signal includes:

- listening to the distributed agent (col. 5, lines 39-50); and
- intercepting the heartbeat signal when the distributed agent sends the heartbeat signal (col. 5, lines 39-50).

Art Unit: 2157

As per claims 8 and 28, Manghirmalani teaches a method for monitoring network health comprises:

- receiving a heartbeat signal from a distributed agent located in a segment of a network;
- identifying the segment of the network based on the received heartbeat signal;
- extracting content from the heartbeat signal (col. 5, lines 39-50);
- retrieving a baseline pattern (col. 8, lines 9-15);
- analyzing the deviation between the heartbeat signal and the baseline pattern (col. 8, lines 1-15); and
- verifying the health of the segment of the network based on the deviation (col. 8, lines 22-50).

However, Manghirmalani does not explicitly disclose:

- updating the baseline pattern by incorporating content of the heartbeat signal if the segment health is good.

Liang discloses a health diagnostic system capable for monitoring the health condition of computing device on a network comprising:

- updating the baseline pattern by incorporating content of the heartbeat signal if the segment health is good (col. 8, lines 31-48).

Given the teaching of Liang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a health diagnostic system that is able to predict when a particular device on a network will fail by comparing the sample values with the historic data in order to prevent actual breakdown of devices thereby providing a healthy network system to computing devices on a data network.

As per claim 10, Manghirmalani teaches a system, comprising:

- a plurality sets of agents distributed in a network for sending heartbeat signals, wherein each set of agents is located within a segment of the network (abstract, col. 5, lines 39-50);
- a network health monitoring mechanism for monitoring the health of different segments of the network based on a deviation between the heartbeat signals, received from the agents located in the segments, and one or more baseline patterns representing a normal health of the network ( abstract, col. 5, lines 39-50 and col. 8, lines 8-29), wherein the health of different segments are logged into a recorded health history (col. 11, lines 53-63 and col. 13, lines 31-47).

However, Manghirmalani does not explicitly disclose:

- the network health monitoring mechanism estimates a future at time which the health of one of the segments becomes unacceptable based on a trend detected from the recorded health history.

Liang discloses a health diagnostic system capable for monitoring the health condition of computing device on a network comprising:

- the network health monitoring mechanism estimates a future at time which the health of one of the segments becomes unacceptable based on a trend detected from the recorded health history (col. 8, lines 31-39).

Given the teaching of Liang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a health diagnostic system that is able to predict when a particular device on a network will fail by comparing the sample values with the

Art Unit: 2157

historic data in order to prevent actual breakdown of devices thereby providing a healthy network system to computing devices on a data network.

As per claim **11**, Manghirmalani teaches wherein each of the agents includes:

- a heartbeat signal generator for generating a heartbeat signal containing content specified by a pre-determined configuration (col. 5, lines 39-50 and col. 10, lines 43-47);
- a timer for controlling the timing of transmitting the heartbeat signal (col. 5, lines 39-50 and col. 7, lines 52-55); and
- a heartbeat transmitter for transmitting the heartbeat signal according to the timing specified by the timer (col. 5, lines 39-50).

As per claim **12**, Manghirmalani further teaches:

- a configuration mechanism for performing the pre-determined configuration and for setting up the timer (col. 5, lines 39-50 and col. 7, lines 52-55).

As per claim **13**, Manghirmalani teaches a network health monitoring mechanism includes:

- a heartbeat listener for listening to the plurality sets of agents and for receiving a heartbeat signal from a distributed agent located in a segment of the network (col. 5, lines 39-50); and
- a heartbeat analysis mechanism for determining the health of the segment of the network based on the deviation of the heartbeat signal from the one or more baseline patterns (col. 6, lines 34-48, col. 7, lines 56-67, col. 8, lines 1-15 and lines 22-46).

As per claim **14**, Manghirmalani further teaches:

Art Unit: 2157

- a network health reporting mechanism for reporting and recording the information related to the health of the network (col. 5, lines 39-50, col. 6, lines 34-48 and col. 10, lines 43-47).

As per claim 17, Manghirmalani teaches a network health monitoring mechanism includes:

- a heartbeat listener for listening to the plurality sets of agents and for receiving a heartbeat signal from a distributed agent located in a segment of the network (col. 5, lines 39-50); and
- a heartbeat analysis mechanism for determining the health of the segment of the network based on the deviation of the heartbeat signal from the one or more baseline patterns (col. 6, lines 34-48, col. 7, lines 56-67, col. 8, lines 1-15 and lines 22-46); and
- a network health record storage for receiving and storing the health of the segment (col. 11, lines 53-63 and col. 13, lines 31-47).

However, Manghirmalani does not explicitly disclose:

- wherein the heartbeat analysis mechanism estimates a future time at which the health of the segments becomes unacceptable based on a trend detected by analyzing the network health record storage.

Liang discloses a health diagnostic system capable for monitoring the health condition of computing device on a network comprising:

- wherein the heartbeat analysis mechanism estimates a future time at which the health of the segments becomes unacceptable based on a trend detected by analyzing the network health record storage (col. 8, lines 31-39).



Given the teaching of Liang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a health diagnostic system that is able to predict when a particular device on a network will fail by comparing the sample values with the historic data in order to prevent actual breakdown of devices thereby providing a healthy network system to computing devices on a data network.

As per claim 18, Manghirmalani teaches wherein the heartbeat analysis mechanism comprises:

- a heartbeat content extractor for extracting content from the heartbeat signal (col. 5, lines 39-50);
- a deviation detector for detecting the deviation between the heartbeat signal and the baseline pattern (col. 8, lines 1-15); and
- a network health determiner for determining the health of the segment of the network based on the deviation (col. 5, lines 39-50 and col. 8, lines 1-29).

As per claim 19, Manghirmalani teaches a network health monitoring mechanism, comprising:

- a heartbeat listener for listening to a plurality sets of agents, distributed in at least one segment of a network, and for receiving a heartbeat signal from a distributed agent located in a segment of the network;
- a network segment identifier for identifying the segment from where the heartbeat signal is received (col. 5, lines 39-50 and col. 10, lines 43-47);
- a baseline pattern retriever for retrieving the baseline pattern corresponding to the segment of the network (col. 8, lines 1-15); and

Art Unit: 2157

- a network health reporting mechanism for reporting and recording the information related to the health of the network (col. 5, lines 39-50 and col. 10, lines 43-47).
- a baseline updating mechanism for updating the baseline pattern by incorporating the content of the heartbeat signal if the segment health is good.

However, Manghirmalani does not explicitly disclose:

- a baseline updating mechanism for updating the baseline pattern by incorporating the content of the heartbeat signal if the segment health is good.

Liang discloses a health diagnostic system capable for monitoring the health condition of computing device on a network comprising:

- a baseline updating mechanism for updating the baseline pattern by incorporating the content of the heartbeat signal if the segment health is good (col. 8, lines 31-48).

Given the teaching of Liang, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a health diagnostic system that is able to predict when a particular device on a network will fail by comparing the sample values with the historic data in order to prevent actual breakdown of devices thereby providing a healthy network system to computing devices on a data network.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 6-8, 10-14, 17-19 and 26-28 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Art Unit: 2157

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShonda T. Jacobs0 whose telephone number is 571-272-4004.

The examiner can normally be reached on 8:30 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LaShonda T Jacobs  
Examiner  
Art Unit 2157

ltj  
November 4, 2005

  
ARIO ETIENNE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100